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(RESEARCH ARTICLE)

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A study to assess the knowledge and expected outcome on guidelines directed to medical therapy in heart failure patient undergoing treatment in IP and OP basis at Apollo DRDO hospitals, Hyderabad

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Abstract

Heart failure is a complex clinical condition. Optimal use of guideline-directed medical therapy (GDMT) can prevent hospitalization and mortality among patients with heart failure (HF). Although the guidelines-directed medical therapy for heart failure patients may incur slightly higher expenses, our primary concern was ensuring patients' adherence to this therapy. By conducting this research, we aimed to determine whether adherence to these guidelines would lead to improved patient outcomes and decreased mortality. The study conducted at Apollo DRDO Hospital in Hyderabad selected 60 patients using the purposive sampling technique. Data was collected with the help of informed knowledge questionnaires with the permission from Nursing Head and Ethical approval from Apollo Hospital Jubilee hills. Patients undergoing treatment for heart failure were administered a knowledge & attitude questionnaire before and after receiving guideline-directed education. Paired t-test analysis revealed a significant improvement in knowledge attitude scores.

The result showed that the mean difference in knowledge scores pre- and post-intervention was 1.93, with a paired t-test value of 10.72 ($p < 0.05$). This improvement exceeded the critical t-value of ±2.001, indicating a statistically significant enhancement in knowledge. The mean difference in attitude scores pre- and post-intervention was 1.48, with a paired t-test value of 7.75 ($p < 0.05$), indicating significant improvement in attitude score. And among 60 patients, 6 patients (10%) were readmitted to the hospital and 1 patient (1.67%) died. These findings demonstrate that Guideline-Directed to Medical Therapy (GDMT) is effective in improving outcomes in patients with heart failure and a substantial improvement in quality of life.

Keywords: Heart Failure; Guideline-Directed Medical Therapy (GDMT); Patient Outcomes; Mortality; Quality Of Life; Evidence-Based Medicine

1. Introduction

Heart failure is also known as congestive heart failure, in which the heart is unable to fill with and pump the blood which body needs [1]. It is characterized by dyspnea or exertional limitation due to impairment of ventricular filling or ejection of blood or both. Assessment for heart failure begins with obtaining a medical history and physical examination.

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In patients with heart failure (HF), the goals of treatment are to improve their clinical condition, functional capacity, quality of life, and to prevent the events of hospital readmissions and mortality [2]. The guidelines of various organizations such as American College of Cardiology (ACC), American Heart Association (AHA), Heart Failure Society of America (HFSA), and ESC (European Society of Cardiology) provide a clear idea on the drug choice, drug dose, and target dose to be achieved in heart failure patients and recommend that patients with heart failure with reduced ejection fraction (HFrEF) be treated with maximum tolerated doses of appropriate neurohormonal blockers unless contraindicated or not tolerated . It is now recognized that usage of guideline-directed medical therapy (GDMT) helps in reducing Heart Failure hospitalization, mortality, and improving functional capacity [1].

Guidelines-directed medical therapy (GDMT) strategies include the use of diuretics to relieve symptoms and application of an expanding armamentarium of disease-modifying drug and device therapies [3]. Unless there are specific contraindications, patients with heart failure should be treated with a β-blocker and one of an angiotensin receptors–neprilysin inhibitor, angiotensin-converting enzyme inhibitor, or angiotensin receptor blocker as foundational therapy [2], with addition of a mineral corticoid receptor antagonist in patients with persistent symptoms. Ivabradine and hydralazine /isosorbide dinitrate also have a role in the care of certain patients with with heart failure with reduced ejection fraction (HFrEF) [1]. More recently, sodium-glucose co transporter 2 (SGLT2) inhibitors have further improved disease outcomes [3].

2. Methodology

This study adopted a quantitative research approach, utilizing a one-group pretest-posttest research design to investigate the impact of Guideline-Directed Medical Therapy (GDMT) on heart failure patients. The study was conducted over a period of 3 months at Apollo DRDO Hospital, with a sample size of 60 patients with heart failure undergoing Guideline-Directed Medical Therapy (GDMT). The patients were selected using convenience sampling technique. The inclusion criteria included patients diagnosed with heart failure, undergoing Guideline-Directed Medical Therapy (GDMT), willing to participate, and able to communicate in Telugu, Hindi, or English. Patients with stage D heart failure, severe cognitive impairment, visual and auditory impairment, or unable to communicate in Telugu, Hindi, or English were excluded from the study. Permission was obtained from the medical superintendent, nursing heads, and ethical committee, and informed consent was obtained from all patients before participating in the study. Data was collected using pre-test and post-test questionnaires to assess knowledge about heart failure management and treatment options, and medical records were reviewed to collect data on patient outcomes. A structured teaching program on Guideline-Directed Medical Therapy (GDMT) was also provided to participating patients. The data was analyzed using descriptive statistics (mean, frequency, and percentage) and inferential statistics (t-test).

2.1. Objectives of the study

- To assess the knowledge of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure before and after structured teaching programme.
- To assess the attitude of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure before and after structured teaching programme.
- To assess the impact of Guideline-Directed Medical Therapy (GDMT) with respective knowledge & attitude.
- To assess the impact of Guideline-Directed Medical Therapy (GDMT) in Heart Failure regarding outcomes including mortality, hospitalization and quality of life.

2.2. Hypothesis

- H1: There will be a significant improvement in the knowledge of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure after the structured teaching program.
- H2: There will be a significant improvement in the attitude of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure after the structured teaching program.
- H3: There will be a significant positive correlation between the knowledge and attitude of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure.
- H4: The implementation of Guideline-Directed Medical Therapy (GDMT) in heart failure will result in improved outcomes, including reduced mortality, hospitalization, and improved quality of life.
- H01: Null Hypothesis 1: There will be no significant difference in the knowledge of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure before and after the structured teaching program.
- H02: Null Hypothesis 2: There will be no significant difference in the attitude of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure before and after the structured teaching program.

- H03: Null Hypothesis 3: There will be no significant correlation between the knowledge and attitude of patients regarding Guideline-Directed Medical Therapy (GDMT) in heart failure.
- H04: Null Hypothesis 4: The implementation of Guideline-Directed Medical Therapy (GDMT) in heart failure will not result in improved outcomes, including mortality, hospitalization, and quality of life.

3. Results

3.1. SECTION 1

Frequency and percentage distribution of subjects according to the socio-demographic variables.

Table 1 Demographic characteristics of Patient population

Demographics	Frequency	Percentage
AGE IN YEARS		
Less than 30	0	0
31-50	10	16.67%
51-60	9	15%
More than 60	41	68.33%
TOTAL	60	100%
GENDER		
Male	37	61.67%
Female	23	38.33%
TOTAL	60	100%
RELIGION		
Hindu	40	66.67%
Muslim	19	31.67%
Christian	1	1.66%
TOTAL	60	100%
OCCUPATION		
Employed	8	1.33%
Unemployed.	52	86.67%
TOTAL	60	100%
WEIGHT		
Less than 30kg	00	00%
30-40kg	00	00%
40-50kg	00	00%
More than 50kg	60	100%
TOTAL	60	100
Duration of present illness		
Less than 1year	49	81.67%
1-5years	11	18.33%

More than 5 years	00	00%
TOTAL	60	100%
COMORBIDITIES		
Yes	53	88.33%
No	7	11.67%
TOTAL	60	100%
Any other alternative treatment modalities.		
Yes	00	0%
No	60	100%
TOTAL	60	100%
Any allergies.		
Yes	00	0%
No	60	100%
TOTAL	60	100%

- Age in years -10 (16.67%) were between 31-50 years. 9(15%) were there in age group between 51-60years.And majority 41 (68.33%) were there in age group more than 60years.
- Gender-Majority 37 (61.67%) was male patients. And 23(38.33%) were females.
- The religious distribution of patients was- 40(66.67%) Hindus, 19(31.67%) Muslims and 1(1.66%) Christian.
- The occupational status of the patients revealed that 8 were employed and52 were unemployed.
- The study revealed that 60 patients had a body weight of more than 50kg.
- The duration of heart failure diagnosis varied: 49(81.67%) less than 1 year and 11(18.33%) between 1-5 years.
- Co morbidity status: 53 (88.33%) had existing co morbidities and 7 had none.
- Other treatment modalities: 60 patients were not availing any other treatment modalities.
- Allergies: None of 60 patients reported any kind of allergies.

3.2. SECTION 2

Pre and Post-test levels of knowledge scores of patients with heart failure on GDMT.

Table 2 Pre and Post-test levels of knowledge scores of patients with heart failure on GDMT

	percentage	**Pre test Scores**		**Post test Scores**	
		Frequency	Percentage	Frequency	Percentage
Inadequate	0-33%	10	16.67%	NIL	0
moderate	33.4-66.6%	45	75%	28	46.67%
adequate	66.7-100%	5	8.33%	32	53.33%

The above table shows that in Pre-test 10 (16.67%) had inadequate knowledge, 45 (75%) had moderate knowledge, and 5 (8.33%) had adequate knowledge. In the Post-test NIL inadequate and 28(46.67%) had moderate knowledge and 32(53.33%) had adequate knowledge on GDMT.

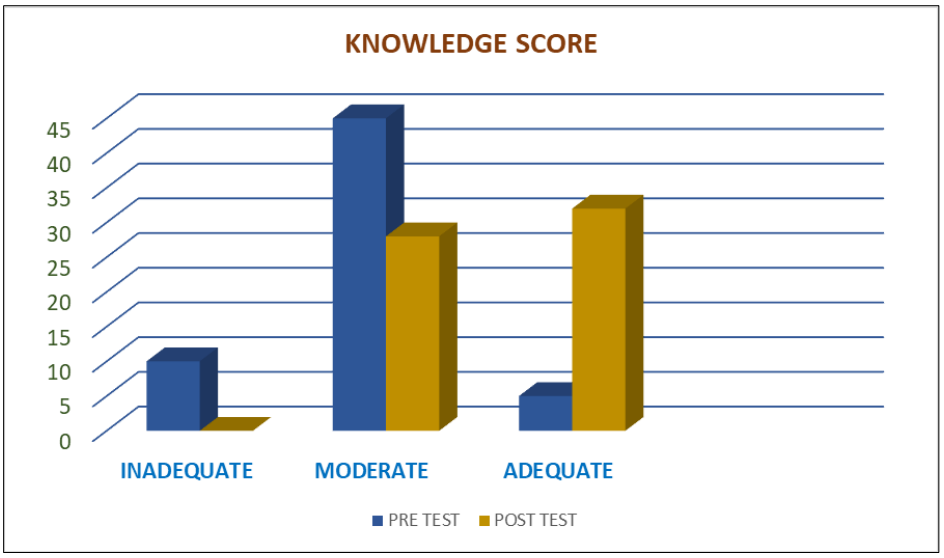

Figure 1 Pre and Post-test levels of knowledge scores of patients with heart failure on GDMT.

3.3. SESSION 3

Effectiveness of information of knowledge among the patients undergoing GDMT in heart failure.

Table 3 Effectiveness of information of knowledge among the patients undergoing GDMT in heart failure

LEVELS OF KNOWLEDGE	MEAN	STANDARD DEVIATION	MEAN DIFFERENCE	PAIRED "t" TEST CALCULATED VALUE	"t" TABLE VALUE	SIGNIFICANCE
PRE TEST	6.48	1.41	1.93	10.72	+-2.001	Significant
POST TEST	8.41	1.24				

Degree of Freedom (d f): (n-1)

3.4. SECTION 4

Pretest and posttest score on attitude of patients undergoing GDMT in heart failure.

Table 4 Pretest and posttest score on attitude of patients undergoing GDMT in heart failure

	Assigned Scores	Pre test Scores		Post test Scores	
		Frequency	Percentage	Frequency	Percentage
Positive Attitude	8-10	21	35%	51	85%
Neutral Attitude	5-7	37	61.67%	9	15%
Negative Attitude	0-4	2	33.33%	0	0%

The above table shows that in Pre-test 21 (35%) had Positive attitude, 37 (61.67%) had neutral attitude, and 2 (33.33%) had negative attitude towards GDMT. In the Post-test 51 (85%) had Positive attitude, 9 (15%) had neutral attitude, and nil had negative attitude towards GDMT.

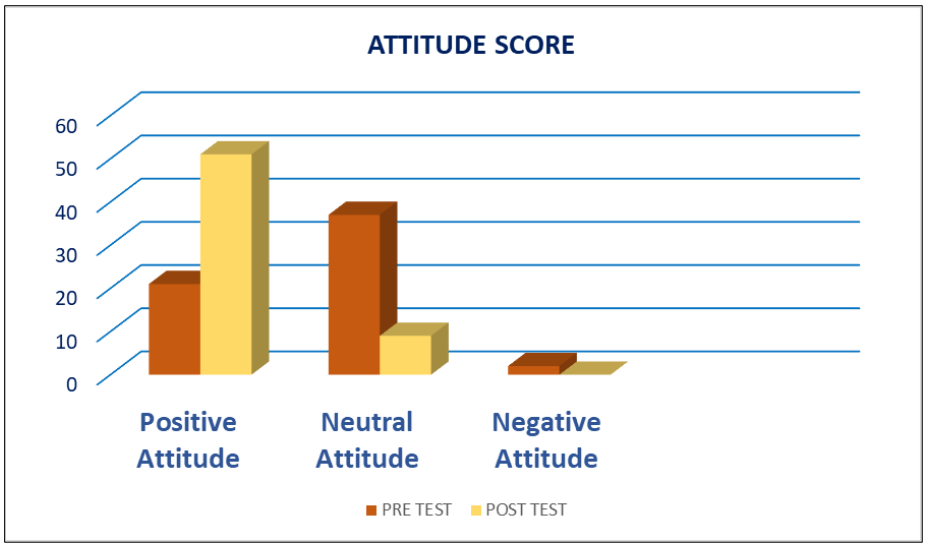

Figure 2 Pre-test and post-test score on attitude of patients undergoing GDMT in heart failure.

3.5. SESSION 5

Table 5 Effectiveness of information to improve the attitude towards guidelines directed medical therapy in patients with heart failure.

LEVELS OF KNOWLEDGE	MEAN	STANDARD DEVIATION	MEAN DIFFERENCE	PAIRED "t" TEST CALCULATED VALUE	"t" TABLE VALUE	SIGNIFICANCE
PRE TEST	6.68	1.52				
POST TEST	8.28	0.92	1.48	7.75	1.96	Significant

Degree of Freedom (d f): (n-1)

3.6. SECTION 6

Outcome of patients undergoing GDMT in heart failure.

Table 6 Outcome of patients undergoing GDMT in heart failure

Outcome	Frequency	Percentage
Readmission	6	10%
Mortality	1	1.67%

The above table shows that readmissions were 6(10%) and mortality was 1(1.67%) among patients undergoing GDMT in heart failure.

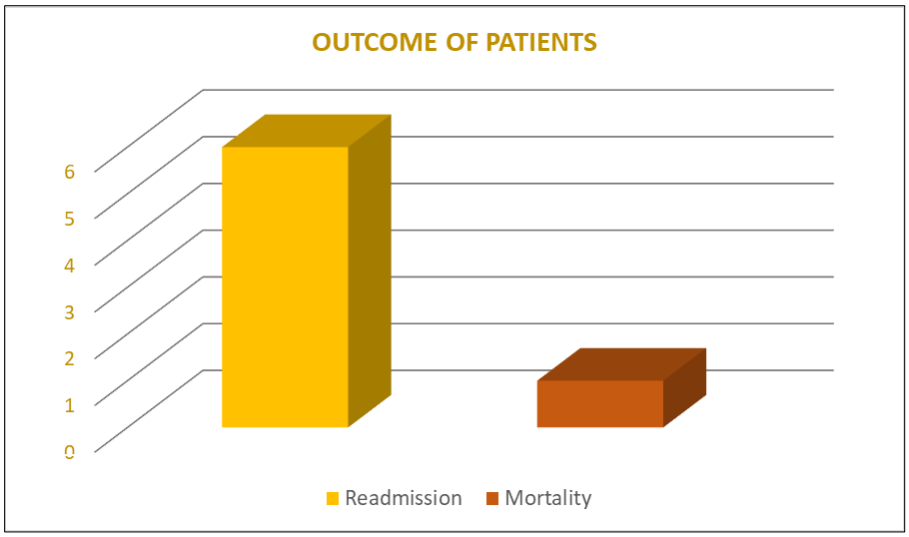

Figure 3 Outcome of patients undergoing GDMT in heart failure.

4. Discussion

The findings of this study demonstrate the effectiveness of Guideline-Directed Medical Therapy (GDMT) in improving patient outcomes and quality of life among individuals with heart failure. The significant improvement in knowledge and attitude scores post-intervention highlights the importance of patient education in enhancing adherence to Guideline-Directed Medical Therapy GDMT. The low rate of hospital readmissions (10%) and mortality (1.67%) in our study population further supports the benefits of Guideline-Directed Medical Therapy (GDMT). Moreover, the substantial improvement in quality of life reported by 83.33% of patients underscores the positive impact of Guideline-Directed Medical Therapy (GDMT) on patient well-being. These results are consistent with existing literature emphasizing the importance of evidence-based medical therapy in heart failure management. Overall, our study provides valuable insights into the demographic and clinical profile of patients with heart failure who may benefit from Guideline-Directed Medical Therapy (GDMT), and supports its use as a standard of care for these patients.

5. Conclusion

The study aimed to assess the knowledge, attitude and expected outcomes of Guideline-Directed Medical Therapy (GDMT) in heart failure patients undergoing treatment at Apollo DRDO Hospital. The results of the study indicates that the patients who received GDMT had significant improvements in their knowledge scores and patient outcomes including reduced hospitalization rates and improved quality of life.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

The ethical approval is obtained from Institutional Ethics Committee -Biomedical Research Apollo Hospital, Hyderabad.

Session held on 19.12.2024.IEC Application No: AHD-ACD-001/12-24

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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